

Fall

2013



BAD RIVER NATURAL RESOURCE

Common Ground

Manomin Management: Update on 2013 Enhancement Efforts

By Jessica Strand, Wetlands Specialist



Brad Bigboy, summer staff from Water Resources, gets to ride on Fond du Lac's airboat as he shows staff from the Fond du Lac Natural Resources Department where the target areas are located.

This past field season was a busy time for those working on projects focusing on enhancing the manomin habitat within the Kakagon and Bad River Sloughs. Enhancement of the manomin beds was completed through several different projects and each project was a collaborative effort between staff within and outside of the Bad River Natural Resources Department (BRNRD).

Airboat Cutting of Wild Rice Competitor Species

Cooperation between the Bad River and Fond du Lac staff resulted in the control of 24.14 acres in the Kakagon Sloughs using airboat mowers. The control targeted native species (arrowhead, pickerel weed, burreed, and lilies) that are thought to outcompete the wild rice for habitat space.

Each site was surveyed by Bad River staff prior to cutting to determine the density of the undesirable species and to confirm that locations chosen the previous year were still exhibiting poor wild rice density. Based upon these surveys some of the sites that the community helped to

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- *Bad River IAQ Services*
- *Wolf Harvesting Zones*
- *Free Radon Testing*
- *Free Well Testing Sign-up*

Manomin Management: Update on 2013 Enhancement Efforts Continued

By Jessica Strand, Wetlands Specialist



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identify last year were downsized as they had more wild rice plants in certain areas than previously observed and the control was designed to exclude these areas with denser wild rice beds. After the surveys were completed, staff marked off the selected sections for cutting by the

airboat crews coming over from Fond du

Lac. The first cutting took place at the end of June, and Fond du Lac returned for subsequent cuttings in the middle and end of July.

Overall the cutting went well, though there were some changes made based on what was experienced. For example, the technique used to control the released biomass (e.g., plant debris) needed to be tweaked and the use of a boom net added to better collect biomass for removal. The success of the cutting will be evaluated next summer when department staff resurvey each site to determine whether the undesirable plant species have decreased in density and the wild rice increased

in density. These results will be communicated to the community as part of the ongoing conversation the BRNRD will be maintaining as it moves ahead with manomin management work.

Hand Pulling and Cutting of Wild Rice Competitor Species

BRNRD Water and Fishery Program staff worked together to complete hand control within 2.29 acres of the Kakagon Slough to complement the airboat control efforts. These areas were controlled by hand because they contained patches of the undesirable competitor species (burreed, arrowhead, lilies, and pickerelweed) within more dense wild rice beds, and staff could be more discriminate and avoid the wild rice plants when cutting and pulling by hand. However, since this control was more selective, it was also very time intensive and not as many acres were treated as originally targeted. Surveys were also completed at these sites so that an assessment could be completed next summer to determine the

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Ed Wiggins (BRNRD) and Cord Timo (FdL NRD) launch the airboat into the Kakagon; Raymond Couture gave BRNRD permission to use his yard as an access point.



Manomin Management: Update on 2013 Enhancement Efforts Continued

By Jessica Strand, Wetlands Specialist



Left: Fishery Program staff, Christina Shubat and Matt Deloney, pull pickerel weed from a plot downstream of the fish hatchery. Right: A staff member stands in a boat that is being filled with the competitors removed from the wild rice beds.

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success of the control efforts. The results of the hand control methods will be compared to those of the airboat control (i.e., hand pulling v. hand cutting v. airboat cutting) to determine which of the methods may appear to be the more successful. Comparing the success of the methods will allow the Tribe to make informed decisions as we move forward with manomin management; though, it is likely that one year of data won't be definitive when deciding which method is better at controlling the competitors.

Additional Management Efforts

Other management efforts that took place this year include some of the following activities (this list is not comprehensive):

- Staff from the Fishery Program also worked on continuing the cattail clone control efforts from previous years, harvesting boat loads of the invasive narrow-leaf and hybrid cattails that are slowly encroaching into the wild rice beds.
- The Fisheries Program continued work netting and culling carp species from the Kakagon Sloughs in areas where the fish come to spawn. Carp have been suspected as having a negative impact on wild rice beds by uprooting young

plants, eating young plants and seeds, and increasing water turbidity.

- The Bad River Legal Department worked on changes to the Bad River Band Sloughs Protection Ordinance to increase penalties for disturbing and damaging the wild rice beds and violating other parts of the ordinance.
- Water Resources staff, volunteers from the local community, and UW-Extension staff worked together to organize a Youth Wild Rice Harvesting Workshop to teach youth how to harvest manomin and educate them on its cultural and ecological importance.
- Muskrat house counts were conducted by Wildlife Program staff in an effort to monitor muskrat population trends in the Kakagon Sloughs.
- A wide variety of programs continued monitoring efforts in the Kakagon and Bad River Slough ecosystem, collecting data on wildlife populations, water quality, water quantity, and other aspects that may influence the health of the local ecosystems, and thus, the wild rice.

The Water Resources Program is still looking for volunteers to help with wild rice enhancement. If you—or group you are a part of—would like to help please contact us at 715-628-7123 and ask for either Naomi or Jessica. Mügwech.

Particulate Matter matters.

Nathan Kilger, Air Quality Specialist



From our lungs' point of view, bigger particulates are less harmful. Because of their weight, the larger particulate matter — between 10 and 2.5 microns in diameter (coarse particles, **PM₁₀**) — settles to the ground quickly. If we do inhale it, this particulate matter collects in our nose and throat. Then our body eliminates it through such processes as sneezing and coughing.

In contrast, particulate matter that's less than 2.5 microns in

diameter (fine particles, **PM_{2.5}**) can remain in the air for days or weeks. It can penetrate deep into our lungs, collecting in tiny air sacs (alveoli) where oxygen enters the bloodstream. Health problems begin when the body starts to react to these foreign invaders. Another danger is that **PM_{2.5}** can contain a number of potentially harmful substances, such as cancer-causing chemicals.

Coughing and wheezing are two of the mild problems associated with inhaling **PM_{2.5}**. However, this type of air pollution can also cause or worsen serious illnesses such as asthma, heart disease, chronic bronchitis, emphysema and pneumonia. Exposure to **PM_{2.5}** is associated with a significant rise in the number of premature deaths from respiratory and heart disease. It's also linked with more emergency room visits, hospitalization, and time off work and school. Long-term exposure in pregnant women can cause premature births and low birth weights.

Senior citizens, infants, and people who already have lung, heart and other illnesses (such as diabetes) are the most vulnerable. However, healthy adults and children can be affected, too.

PM_{2.5} and asthma are a bad mix. **PM_{2.5}** can increase the number of asthma attacks, and make them more severe. 1 in 10 children (10%) and 1 in 12 adults (8%) suffer from this condition, and asthma is the most common cause of medical emergencies in children.

Sources of **PM_{2.5}** on the Bad River Reservation include burning barrels, unpaved roads, and wood stoves.

Firing up wood stoves in winter is necessary to fight off the cold temperatures of winter, but a side-effect of burning wood

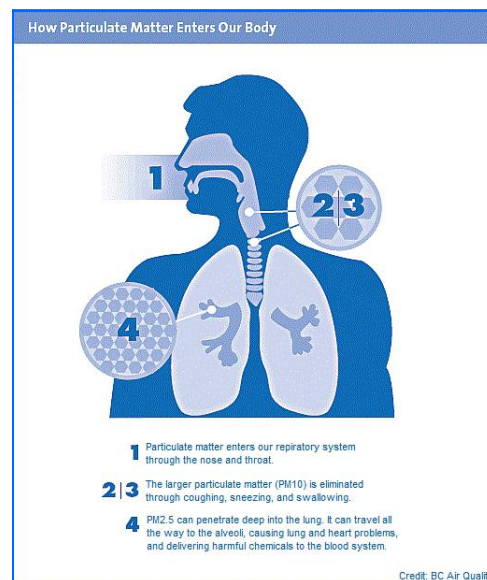
is increased coarse and fine particulate matter. When the stove is located inside the house, that can mean increased soot and dust which lead to indoor air quality and health issues; but the stove's chimney brings the ash, soot, and smoke outside where it can cause more problems.

Because **PM_{2.5}** is a health concern, the Bad River Air Program monitors **PM_{2.5}** on the Bad River Reservation. We see the highest **PM_{2.5}** concentrations usually occur in the winter months, with certain weather conditions in January and February sometimes causing the worst problems.

In the last ten years, the highest fine particulate pollution was measured on February 24th, 2008. The weather leading up to February 24th allowed wood smoke and coal-fired power plants across Wisconsin, Minnesota, and Iowa to remain trapped near the ground and created a layer of pollution that covered several states.

While such events are more common in the valleys of Montana, Idaho, and Colorado, the pollution of February 24th is an example that wood stoves can contribute to the air we breathe, and is directly related to human health.

If you believe wood smoke inside your home may be making you sick, please don't hesitate to call the Bad River Air Quality office for an evaluation and measurements. Burning only dry and seasoned wood not only helps reduce creosote in your chimney, it also burns hotter and cleaner, reducing **PM_{2.5}** in the air both inside and outside your home.



Free Well Testing Program Offered in Ashland and Iron Counties!

Written by: Naomi Tillison, Water Resources Specialist



Are you interested in getting your private well tested for free? You may have that opportunity this February. Iron County Land and Water Conservation Department (LWCD) is collaborating with Ashland County LWCD and the Bad River Natural Resources Department (NRD) to implement a ***Groundwater Education and Well Testing Program*** funded by the Wisconsin Coastal Management Program. Funds have been secured to analyze over 200 samples collected from private wells located within

the Lake Superior Basin of Ashland and Iron Counties. The project partners are currently trying to find landowners who are interested in participating and willing to collect samples from their private wells on February 17, 2014.

Interested landowners will be provided the sampling protocol when they pick up the sample bottles from a designated location. Samples can be analyzed for the Homeowner's Package or the Metals Package or both packages. The Homeowner's Package tests for nitrate, coliform bacteria, pH, alkalinity, hardness, conductivity, corrosivity, and chloride whereas the Metals Package tests for arsenic, calcium, copper, iron, lead, magnesium, manganese, potassium, sodium, sulfate, and zinc. After the analytical tests are completed, a meeting will be held with staff from the Center for Watershed Science and Education to explain your test results.

This program is not mandatory or regulatory, but simply an educational opportunity for you to learn about your drinking water and help to increase our knowledge of groundwater quality in the region. To participate, you must:

- Reside within the Lake Superior Basin in Ashland and Iron Counties;
- Have a private well you use for drinking water;
- Pick up your sample bottle(s) at the Bad River NRD office in Odanah during the **week of February 10, 2014;**
- Collect your water samples on **Monday, February 17, 2014** following the directions provided with your sample bottles;
- Return your water samples to one of the collection points by **5:30 P.M. on Monday, February 17th.**
- Attend a follow-up meeting to review your test results, learn how to interpret them, and learn how to protect your drinking water and our groundwater resources.

If you reside within the Bad River Reservation boundaries and are interested in participating in this well testing project, please complete the form on the following page and return it to the Bad River Natural Resources Department by **January 13, 2014.** If you are interested in participating, but do not live within the Reservation boundaries (but within the Lake Superior basin in Ashland and Iron Counties), please complete the form and return it to the respective county's LWCD by the deadline. If you have questions about this project, please contact Naomi Tillison at (715) 682-7123 x1566 or wqs@badriver-nsn.gov. We are excited about this collaborative program and encourage residents to participate in this rare opportunity to test their well for free!



Return form to:

Bad River Natural Resources Department, Attn: Water Resources Specialist, P.O. Box 39, Odanah, WI 54861



Yes! I'm interested in testing my drinking water!

Please fill out this form completely and clearly and return to the address above by January 13, 2014. We will notify you if you have been selected for free testing and provide additional details shortly thereafter.

Select one or both free tests:

- ☐ HOMEOWNERS PACKAGE (nitrate, coliform bacteria, pH, alkalinity, hardness, conductivity, corrosivity, chloride)
- ☐ METALS PACKAGE (arsenic, calcium, copper, iron, lead, magnesium, manganese, potassium, sodium, sulfate, and zinc)
- ☐ I am also aware of unused wells that need proper abandonment (we will contact you for more information).

Print Name: _____

Mailing Address: _____

City: _____

State: _____ Zip: _____

Phone: _____

Email: _____

Well Address/Location, if different: _____

Unique Well ID (if known): _____



Funded by the Wisconsin Coastal Management Program and the National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management under the Coastal Zone Management Act, Grant #AD139694-014.20



Monitoring for E. coli in the Bad River Watershed

By: Naomi Tillison, Water Resources Specialist

In 2001, the Bad River Natural Resources Department (BRNRD) started analyzing samples collected from surface waters for E. coli. E. coli serves as an indicator organism for fecal contamination. Its presence in streams suggests that pathogenic microorganisms might also be present and that swimming might be a health risk (U.S. EPA 2012). Sources of fecal contamination to surface waters include wastewater treatment plants, on-site septic systems, domestic and wild animal manure, and storm runoff (U.S. EPA 2012).

The Bad River Tribe's water quality standards (WQS) contain numeric bacteria criteria protective of human health. The criteria were derived to protect the recreational and cultural designated uses that apply to surface waters. In a single sample, the concentration of E. coli, an indicator organism of fecal contamination, cannot exceed 235 CFU/100 mL according to the Tribe's WQS.

Between 2007-2012, BRNRD monitored around 100 surface water sites for E. coli. The majority of these sites were located on streams and rivers, wetlands, and other surface waters within the Bad River Watershed, primarily located within the Bad River Reservation. In 2011, BRNRD initiated E. coli monitoring at five (5) beaches on the shores of Lake Superior within the Reservation (Figure 1).

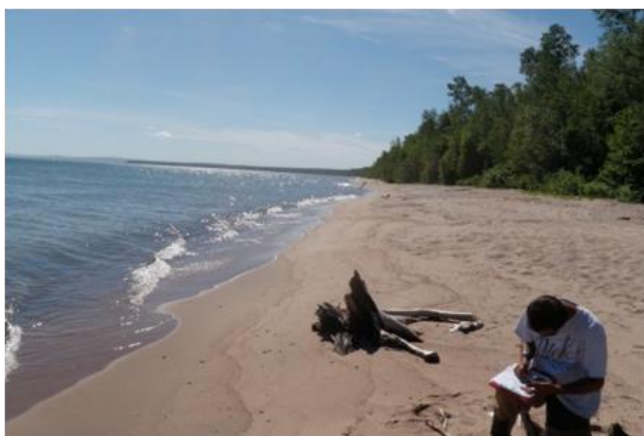


Figure 1: Water Resources staff, Nick Blanchard, monitoring Waverly beach in July 2011.

Between 2007-2012, over a thousand samples ($n = 1137$) were collected from 41 stream and river sites and analyzed for E. coli. Exceedances of the Tribe's E. coli criterion were measured in 5% of these samples. Elevated E. coli concentrations were documented at approximately a third of the stream and river sites monitored during this timeframe (Figure 2). Almost half of the sites where E. coli exceedances occurred were located within the Marengo River subwatershed. Forty (40) of the sixty (60) exceedances measured at stream and river sites between 2007-2012 occurred in the Marengo River subwatershed with 75% of these exceedances documented at two sites located on tributaries to the Marengo River. The data collected by BRNRD shows elevated E. coli concentrations tend to occur during runoff events.

Between 2011-2012, five (5) out of the 138 samples collected from the five (5) beach sites monitored had elevated E. coli concentrations and exceeded the Tribe's E. coli criterion. These exceedances were measured on four (4) different sampling days and were associated with runoff events. In 2013, BRNRD increased the number of beach sites monitored for E. coli. Additionally, BRNRD started posting an advisory at a beach site when an elevated E. coli concentration was documented in order to caution swimmers of the potential health risk associated with the current conditions of that site. An advisory was lifted once the E. coli concentration dropped below the Tribe's criterion.

Overall, the majority of surface water sites that were monitored between 2007-2012 typically had low E. coli concentrations and met the Tribe's criterion. However, fecal contamination is a concern in certain surface waters of the watershed, especially during storm events when water runs over and through the land, picking up contaminants and depositing them in surface waters. BRNRD will continue to monitor beaches, streams and rivers, and other surfaces for E. coli (in conjunction with monitoring other water quality parameters). Not only will we continue our monitoring efforts, but we will continue to work with partners and landowners to address water quality issues within the watershed.

* U.S. EPA, March 2012 (Last Updated). 5.11 Fecal Bacteria. Washington, D.C. Accessed: March 1, 2013. <http://water.epa.gov/type/rs/monitoring/vms511.cfm>

Monitoring for *E. coli* in the Bad River Watershed *Continued*

By: Naomi Tillison, Water Resources Specialist

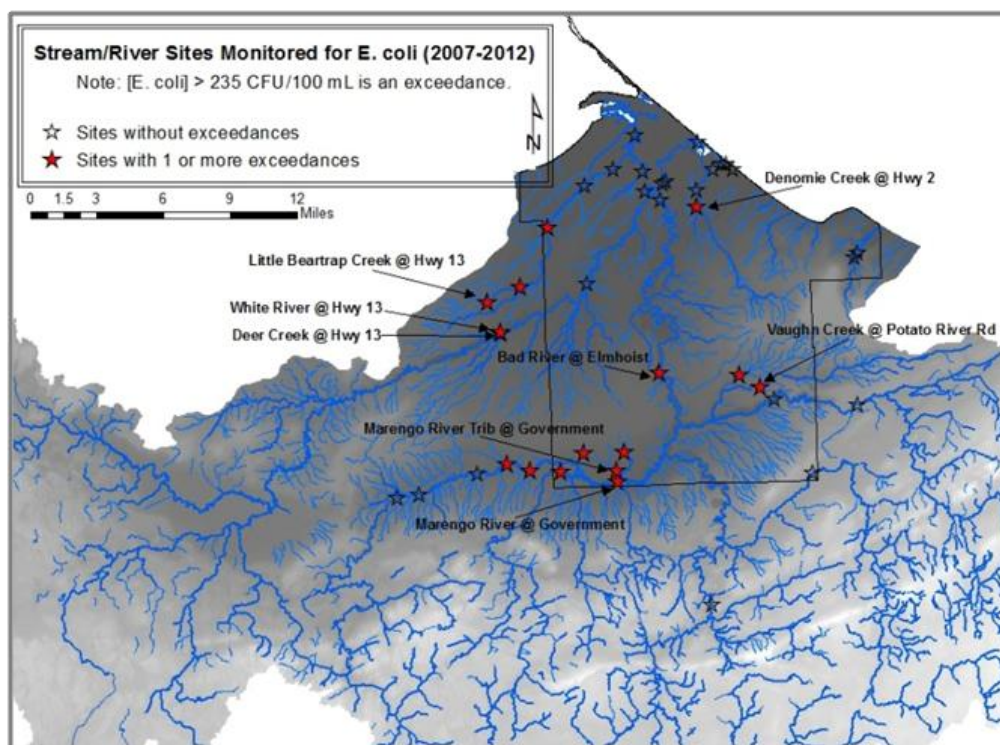


Figure 2: BRNRD monitored 41 sites located on streams and rivers within the Bad River Watershed for *E. coli* between 2007-2012. A site shown by a red star indicates that at least one sample collected from that site had an *E. coli* concentration greater than the Tribe's criterion (235 CFU/100 mL).



ANA Program Update

By Tony Corbine, ANA Grant

On Saturday November 9th, we held a program update for the community. We had over 20 people in attendance to listen about the project scope and shared some goals for the coming years. The guest speakers were Professor Larry Nesper, PhD., UW-Madison, Department of Anthropology, Native American Studies Program, and Mr. Robert VanZile from Mole Lake Sokaogan Chippewa Tribe. There was a short presentation about the grant specifics and then our guest speakers were invited to the podium to share their definition of Traditional Cultural Properties (TCP) and why it is so important to continue our cultural practices at these locations. Professor Nesper is co-author of a document titled "The Mushigagamongsebe District: A Traditional Cultural Landscape of the Sokaogan Ojibwe Community", created on October 2002. The report was written about an area of great cultural significance to the Tribe, for reasons detailed in the report, and subjected to a number of devastating impacts if the Army Corps of Engineers permitted the Crandon mine. For similar reasons, Bad River Tribe is working toward creating a document that provides the Tribal Government the capacity to articulate traditional socio-natural connections within a framework of Tribal Water Quality Standards. Creating a comprehensive report containing cultural, historic and scientific data in the interim titled, Mashkiiziibii: Human, Water and Landscape Report.

If you are curious about the Traditional Cultural Properties identified in the report or would like to share a story about a sacred site located within the Bad River Watershed, please contact the ANA Grant Administrator, Tony Corbine, at anagrnt@badriver-nsn.gov or 715-682-7123.



Indoor Air Quality

By Daniel Wiggins– Air Quality Technician

With people spending up to 90% of their time indoors the growing awareness to address indoor air conditions has become more relevant. Scientific studies have proven some indoor environments are more polluted than any outdoor environment, which health concerns can vary from home to home, can be related to allergies or asthma, and can cause cancer and even death.

Indoor air pollution is sometimes not contributed solely by one source, but rather a combination of sources or factors. There are a variety of things that can contribute to indoor air pollution and is usually associated with sources that release gases or particles into the air. It can be related to specific use of certain chemicals and cleaning agents or traced back to a malfunctioning gas-appliance, such as a furnace. Other issues can be directly related to how the home was built or the deterioration of the structure overtime. “Leaky” homes have a tendency of being less energy efficient and may allow excessive moisture to enter, eventually contributing to moisture damage and the development of mold.

Controlling or eliminating sources to minimize can improve indoor environments; however, locating and identifying these sources are not always simple. Reading labels and understanding proper usage of cleaning agents or other household chemicals should be done before use and may help limit some pollutants. Allowing an adequate amount of outdoor air to be introduced into the home can often avoid a build-up of many indoor pollutants.

Other pollutants may be more difficult to control and may require a sort of testing to identify. Radon is naturally occurring, odorless, cannot be seen, and may cause the development of lung cancer. A test kit placed in the home is the only way to determine the indoor radon concentration. Depending on the recorded level of radon a home may require radon reduction system to be installed to lower the levels. Other pollutants, such as carbon monoxide are also odorless, cannot be seen, and can cause death. Maintaining and understanding the proper usage of gas appliances can help avoid a build-up of CO and CO detectors are important in every home and building to avoid being present during threshold levels.

Health effects associated with certain pollutants are more difficult to pin point . With multiple household chemicals being present in today’s homes, along with each person reacting differently to certain pollutants, establishing precise concentrations related to the development of certain symptoms are drastically harder to determine. Regular wheezing, colds, and irritation of asthma can often be signs of elevated pollutants. It is important to notice time and place of symptoms and if they lessen or go away once leaving the home.

Not all indoor pollutants will be noticed immediately, which exposure to some pollutants overtime can contribute to cancers, respiratory illness, or heart disease. This is why it is important to identify pollutants, such as radon. The United States Environmental Protection Agency (USEPA) has this and additional information related to Indoor Air Quality, at <http://www.epa.gov/iaq/index.html>.

Bad River IAQ Services

The Bad River Air Office is capable of conducting IAQ Assessments and has monitoring capabilities to identify the levels of specific pollutants or indoor conditions. For additional information or in need of services please contact the AQT at 715-682-7123 ext. 1553. Below are the services available.

IAQ Assessments

Radon Assessment

Blower Door Testing/Thermal Imaging

Direct Measurements:

Carbon Monoxide: Odorless, colorless, tasteless, and toxic gas that kill a person

Radon: Odorless, colorless, tasteless gas that is the second leading cause of lung cancer

Total Volatile Organic Compounds: Gases emitted from certain solids and liquids that can have short or long-term health effects

Ultrafine Particulate Matter: microscopic solids and liquids that are so small can cause adverse health effects. Environmental Tobacco Smoke can be detected as a UFP.

Formaldehyde: colorless, pungent smelling, gas that is emitted from certain building materials and combustion appliances and can aggravate asthma condition, cause skin rash and irritation, eye/ throat/ nose irritation, wheezing, coughing, and may even cause cancer.

Carbon Dioxide: at high levels can cause *Sick Building Syndrome* (SBS), which symptoms often related to asthma and allergy symptoms, and respiratory illness.

Hydrogen Sulfide: gas with rotten egg smell, which can have adverse health effects depending on concentration.



Maps on the Mind

By Kim Sundeen (Ness) - GIS Specialist



What is GIS and Who uses it?

For those who forgot to study up, GIS stands for Geographic Information Systems. This is a technology—a tool—that manages, analyzes, and displays information linked to real-world locations. GIS is used mainly to manage the data and information to display on maps such as stream locations, land parcel ownership, utility lines, forest stands, and burial sites. Those who *use* GIS include:

- **Anyone** using Bing, Google Maps, MapQuest...etc to search for locations online or request driving directions;
- **Tribal Members** viewing public aerial imagery on Google Earth for historical changes of a landscape or for selecting ideal hunting areas;
- **Health Care Providers and Air Quality Specialists** plotting air quality risks (like mercury or particulate matter) to alert the public to health alerts;
- **Emergency Managers** assessing natural disaster potential by searching for data on the internet and providing on maps for flood potential, snow warnings, fire hazards;
- **Land Surveyors or Realty Staff** using Global Positional System (GPS) and GIS tools to create legal descriptions and plot lease boundaries;
- **Roads Managers** marking locations of center lines and noting needed improvements for particular road sections;
- **Utility Workers and Engineers**, like those in the Indian Health Services, marking utility poles or water lines and determining which houses are connected to the grid;
- **Well Inspectors** recording locations and conditions of culverts and well locations to check for updates;
- **Wildlife Biologists** tracking movements of wolves, deer, and other animals to map out territories and estimate populations sizes;
- **Cultural Anthropologists, Archaeologists, and Tribal Preservation Historic Officers** using Ground-Penetrating Radar (GPR) to determine whether unmarked burials are present near streambeds or in existing cemeteries, which can be mapped with GIS to show tribal members;
- **Hydrologists and Water Resource Experts** monitoring water quality in streams and lakes to model where certain pollutants flow downstream to assess where tribal wild rice

harvest areas might be affected;

- **Foresters** inventorying locations of tree species or harvest status, or use aerial imagery to classify land cover types and acreage available for harvest;
- **Business Managers** searching for areas to site the next casino that serve a specified population range and need maps for grant applications;
- **Tribal Planners** locating parcels or make new building recommendations that are closest to utilities, existing roads and communities, and avoid impacts to water resources.

Why Use GIS for the Bad River?

The bullets list above still only touches some main GIS applications for tribal governments and Bad River in particular. One main obstacle to gaining tribal-wide support for GIS is to show how such mapping tools are a **CRITICAL** part to tribal government. Maintaining GIS support consistently for each department is critical to tribal government for four reasons.

1. **GIS Software is FREE.** Thanks to the Enterprise License Agreement between the Bureau of Indians Affairs and a huge mapping software company (ESRI), all federally-recognized tribes in the US receive GIS Software for **FREE**. For a private company, the same GIS software might cost upwards of \$50,000 per year! But remember, GIS personnel are not free. Trained staff are an asset for each department that wants to use GIS and maps.
2. **GIS SAVES MONEY!** Consider how much time, money, and effort that goes into researching and proposing a new development for a building or house. Surveyors, planners, utility works, engineers, and natural resource managers are all involved at different stages in a planning project to make decisions. Each stakeholder develops their own plan, map, or report to present to the Tribal Council for approval. Now consider if all these same stakeholders in the same room viewing a map with information on all the cultural, economic, and natural resources available. This interactive planning tool has the potential to save the Bad River Tribe hours, weeks, or even months of lost planning effort by answering questions about resources interactively with a map resource created using GIS.
3. **GIS Software is a Database Management Solution for the ENTIRE Tribe:** Other tribes actually use this same

(Continued on page 11)

Maps on the Mind Continued

By Kim Sundeen (Ness) - GIS Specialist

software as the tribe's central database. Each department could theoretically manage all their data in one central location that allows each department to map out certain datasets.

4. **GIS is a Communication Tool.** Maps are excellent presentation and communication tools that may emphasize a problem to a larger audience better than a extremely well-written report (that's a bit lengthy); the map in turn may garner more support for a cause. Consider a map illustrating the proximity of wetlands in the Bad River Watershed to the proposed GTAC Mine, which highlights the potential threat to water quality.

Explore Bad River GIS Maps Online!

You can access an online webmap that uses the tools of GIS to map out the natural, cultural, and economic resources on the Bad River Reservation. Tools are available for searching, printing, toggling on and off information about Bad River, measuring distance, viewing information on a selected dataset, and saving your own online map to view later.

Login-page for public webmap: <http://>

badrivergis.maps.arcgis.com

Webmap directly: <http://badrivergis.maps.arcgis.com/apps/OnePane/basicviewer/index.html?appid=b45e268215e044a8831b4a9c70079a07>

Username: badriverband123

Password: badriverband123

For those technologically-inclined, you can access these same webmaps on your mobile device like your smart phone (iphones, ipad, android phone or tablet). Download the free mobile app here:

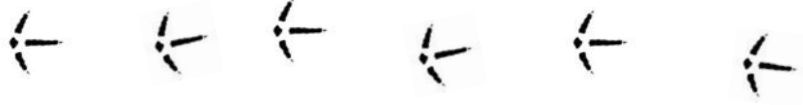
<http://www.esri.com/software/arcgis/smartphones/arcgis-app> or through the mobile app store.

*If you have questions or comments, please contact Kim Sundeen (Ness) at gspec@badriver-nsn.gov or (715) 682-7123



Critter Highlight – Gichi-bine (Eastern Wild Turkey, *Meleagris gallopavo silvestris*)

By Lacey Hill, Wildlife/ GIS Specialist



A little history...

There are five different subspecies of wild turkeys in North America. The one located in this region is known as the Eastern Wild Turkey or “forest turkey.” Recently, it has not been uncommon to spot a wild

turkey on the Bad River Reservation. A decade ago it was a rare sight to see a turkey in Northern Wisconsin. So what is with the change? Back in the late 1800’s wild turkeys were extirpated, or removed completely, from all of Wisconsin. Over-hunting, over-harvesting of forests, and diseases introduced to the native population by domestic turkeys all could have been contributing factors to the decline of wild turkeys in Wisconsin.

Numerous attempts were made in the late 1890’s through the earlier half of the nineteenth century to reintroduce wild turkeys but they all failed. The first successful attempt was from a strain of turkeys from a game breeder in Pennsylvania to the Necedah National Wildlife Refuge in the 1950’s. The wild turkey population really did not begin to take off however until the mid-1970’s when the Wisconsin Department of Natural Resources (WDNR) and the Missouri Department of Natural Resources initialized a translocation program. Wisconsin gave Missouri 135 wild ruffed grouse in exchange of 334 wild turkeys from Missouri! I think that is a very interesting and little known fact about the history of wild turkey recovery in the region.

As the turkey population began to flourish in the southern end of the state, an active trap and transplant program began transplanting turkeys all over their historical range in Wisconsin. In the early 2000’s I remember sitting in on the conversations to translocate turkeys to this area. Several locations around Ashland were selected for the translocation. I don’t think anyone at that time expected turkeys to do as well as they have been doing in the harsh winters of the northwoods.

A little more information...

Wild turkeys are spring time breeders, which gets triggered by the lengthening amount of daylight that occurs that time of year. This typically begins in late March through April. You may notice toms (the male turkeys) fanned out in display for hens on some of the gravel roads this time of year. The hens (female turkeys), are ground nesters so once bred they will create a small depression in the debris on the forest floor usually near

something that will give them some cover for protection. Be careful when walking through the woods this time of year! There are multiple species of ground nesting birds in our area with nests that can be difficult to see.

On average they will lay around eleven eggs and will need to incubate them for four weeks. This is a dangerous time for both the hen and the eggs, due to predation and other forest disturbances such as logging and spring flooding events. If the nest is successful and makes it through the four week incubation period it can be up to two weeks before the poults (baby turkeys) are able to fly short distances off the ground to escape predators.

In the spring, Bad River Natural Resources Department (BRNRD) collects information about the breeding activity of wild turkeys on the Reservation. Then June through August, BRNRD field staff collects information on brood observations to assess brood survival and the reproductive success of turkeys that year. If you are interested in learning more please contact the Bad River Natural Resources Department.

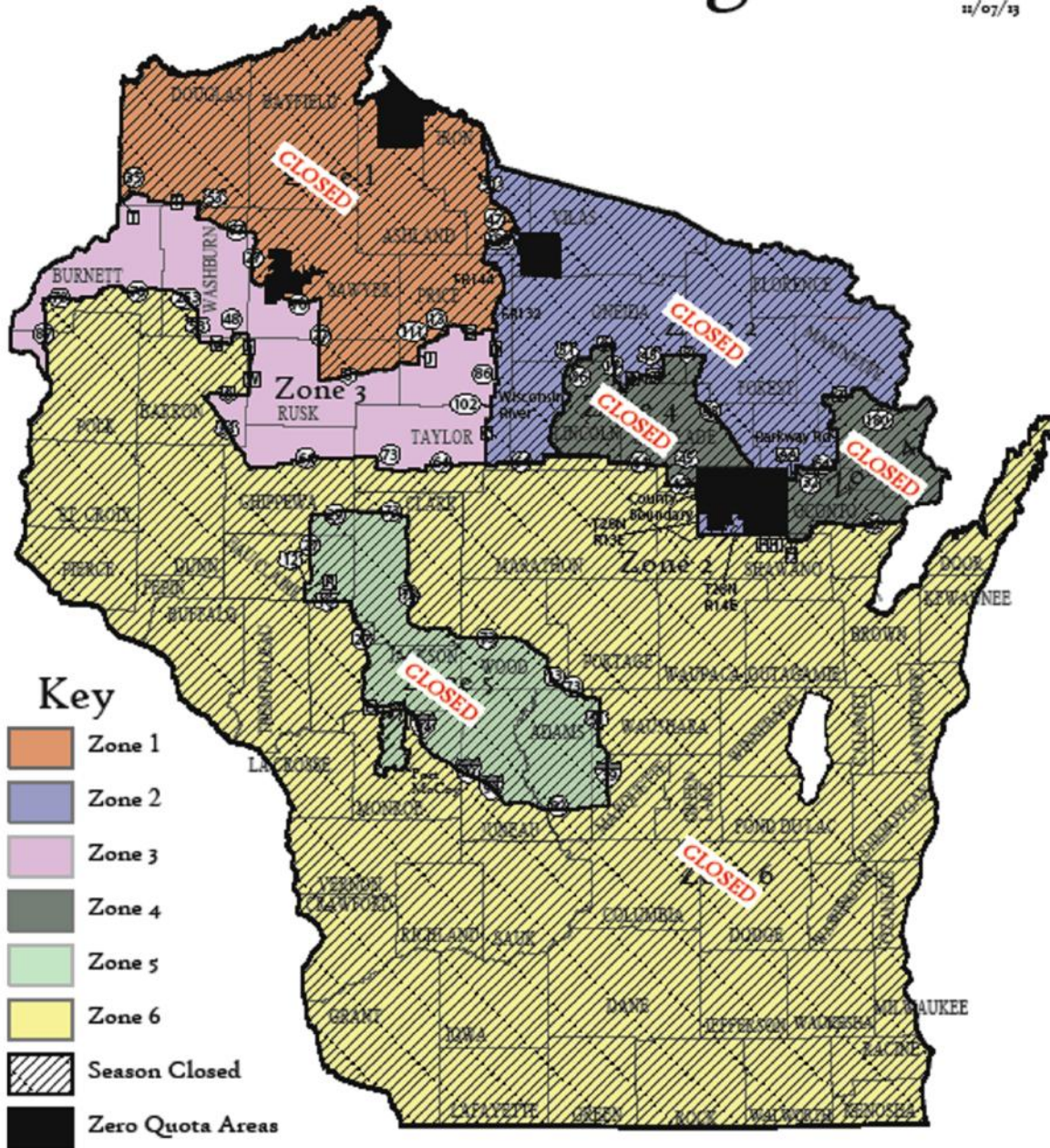
Ma’iingan (Wolf, *Canis lupus*) Update

As of December 9th, 2013, 219 wolves of the 251 quota set by the Wisconsin Department of Natural Resources have been harvested during the 2013 wolf hunt. Currently, it is illegal to harvest a wolf within the exterior boundaries of the Bad River Reservation. The 2013 wolf hunt began on October 15th and within eight days, Zone 2 (the zone covering northeastern WI) had reached its quota of 28 wolves and was closed. Then on October 30th, two weeks after the season opened Zone 1 (northwestern zone and the zone that surrounds the Reservation) and Zone 5 reached the set quota and was closed. Then on November 5th, Zone 4 was closed followed two days later by Zone 6 (the largest zone covering most of southern WI). Currently the only zone that remains open is Zone 3 which is a narrow zone that covers portions of Burnett, Washburn, Rusk, Sawyer, Chippewa, Taylor, and Price counties. Wolf hunting with hounds began in this zone on December 2nd and will continue until the quota for that zone is reached or until February 28th (depending on what comes first).

*Bad River Wildlife Program is interested in trail camera photos, wildlife sightings, etc. If you have any questions please contact Lacey Hill, Wildlife/GIS Specialist at 715-682-7123 extension 1554.

Wolf Harvesting Zones

11/07/13



Zero Quota Areas - Wolf harvest is not allowed within the exterior boundaries of the Bad River, Lac Courte Oreilles, Lac du Flambeau, Menominee, and Red Cliff reservations nor within the designated Stockbridge-Munsee wolf zone except with DNR depredation permits.

Access to Fort McCoy is by special permit only. Wolf harvesting will not be allowed in Fort McCoy during the 2013-14 season.



BAD RIVER NATURAL RESOURCES

Bad River Natural Resource Department

Chief Blackbird Center

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Phone: 715-682-7123

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Photo By Daniel Wiggins

"Forest Canopy"

We're On The WEB!

www.badriver-nsn.gov

ATTN: Bad River Tribal Members

Bad River Natural Resources Department is assembling a Climate Change Monitoring Working Group. Please keep your eyes open for an announcement. Applications are planned to be made available in January and will be located in the Bad River Natural Resources Department.

FREE RADON TESTING!!!

Contact Daniel Wiggins, Air Quality Technician, at
715-682-7123 ext. 1553 or email: Air1@badriver-nsn.gov

Did You Know Radon...

- Is considered a Class "A" Carcinogen, which means that radon is known to be a cancer causing agent.
- Was found to cause lung cancer by observing and studying miners that were exposed to high levels of radon under the ground.
- Is the second leading cause of lung among people who smoke, and the first leading cause of lung cancer among people who have never smoked.
- It only takes one radon decay particle to be attached to the lung's airways that could then develop into cancer.
- The danger of radon in homes (dwellings) was discovered when an employee, Stanley Watras, at a Nuclear Power Plant set off the radioactive detectors while entering the plant. This would not be odd in a Nuclear Power Plant; however, the employee was coming from home, not leaving work. It was found, soon after, that the employee's home had very high indoor radon levels, 700 times higher than the EPA's Action level.
- 6% of homes are estimated to have levels over 4pCi/L (Roughly 1 out 15 homes)
- There are solutions and methods to solve high indoor radon concentrations.

The only way to know if you have elevated levels of radon is to test!

-MISSION STATEMENT-

The Department strives for resource management which both conserves the natural resources for the future generations and provide for the needs of the present. The departments existence reflects the importance the Bad River Tribe places on its right and ability to exercise sovereignty, self-determination and self-regulation in the area of natural resource management.